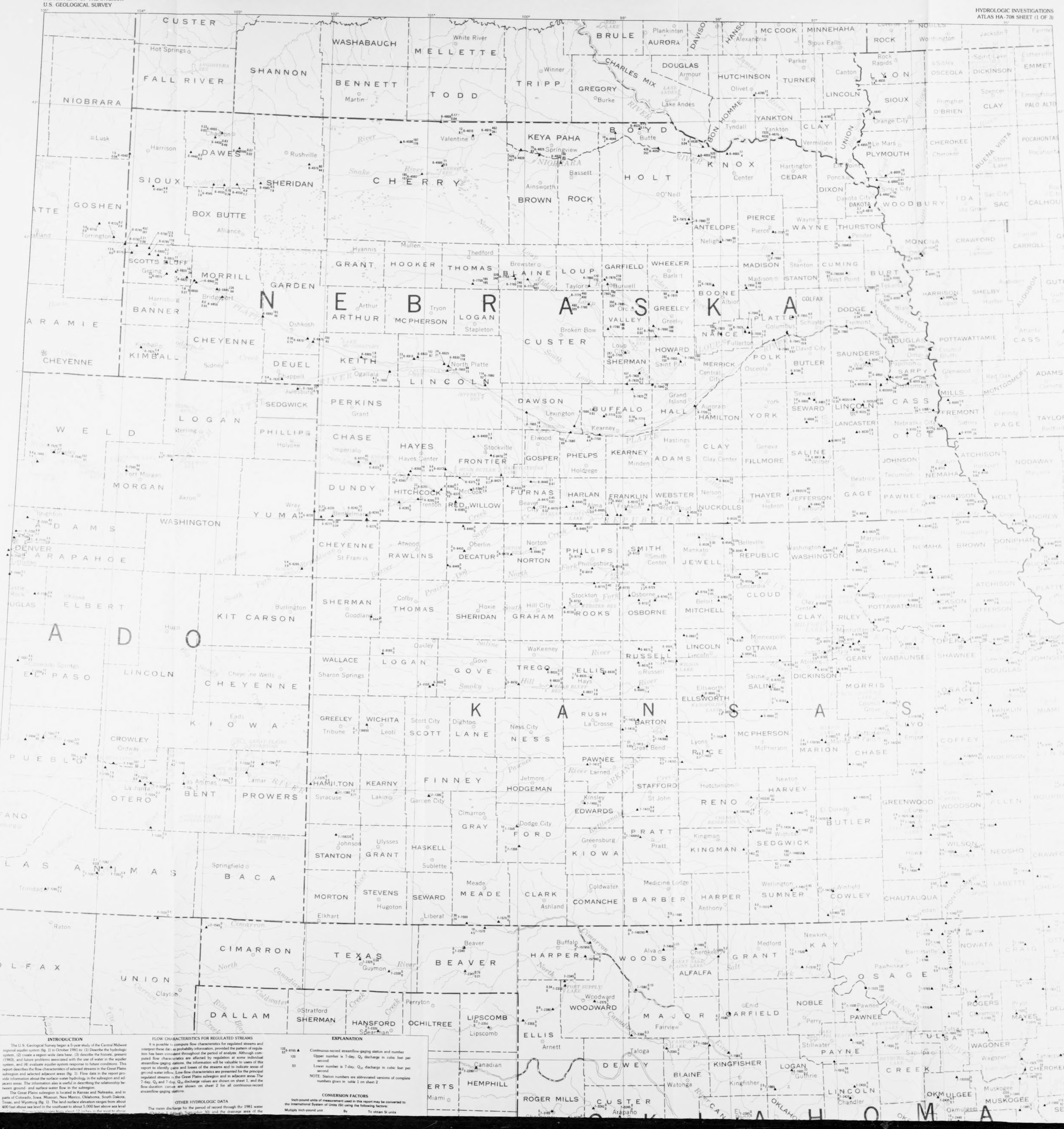
DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

HYDROLOGIC INVESTIGATIONS
ATLAS HA-708 SHEET (1 OF 3)



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OTHER HYDROLOGIC DATA

The mean discharge for the period of record through the 1981 water

EXPLANATION

120 / 53 8155 ▲ — Continuous-record streamflow-gaging station and number
Upper number is 7-day, Q_2 discharge in cubic feet per second
Lower number is 7-day, Q_{10} discharge in cubic feet per second
NOTE: Station numbers are abbreviated versions of complete numbers given in table 1 on sheet 2

CONVERSION FACTORS

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Multiply inch-pound unit	By	To obtain SI units

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NEBRASKA

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The subregion has three extensive water-yielding hydrologic units

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EXPLANATION

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inch	25.40	

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HYDROLOGIC INVESTIGATIONS
ATLAS HA-708 SHEET (2 OF 3)

EXPLANATION
FLOW-DURATION CURVE
Map number given in table 1
524
DISCHARGE IN CUBIC FEET PER SECOND
PERCENTAGE OF TIME DISCHARGE WAS EQUALED OR EXCEEDED
PROBABILITY SCALE
MINIMUM DAILY FLOW, IN CUBIC FEET PER SECOND
Greater than 1000
1000-500
500-200
200-100
100-50
50-20
20-10
10-1.0
Less than 0.1
▲25 CONTINUOUS RECORD STREAMFLOW GAGING STATION AND NUMBER
CONVERSION FACTORS
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Multiply inch-pound unit | By | To obtain SI units
inch | 25.40 | millimeter
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NEBRASKA
COLORADO
KANSAS
BOUNDARY BETWEEN MISSOURI AND ARKANSAS RIVER BASINS

Base from U.S. Geological Survey
State maps, 1:2,500,000, 1972

Table 1.—Discharge and basin characteristics of selected streams DA, drainage area in square miles Q_a, mean annual discharge, Q_{10}, Q_{20}, Q_{50}, Q_{70}, Q_{90}, Q_{95}, discharge that exceeded for indicated percent of time. All discharges are in cubic feet per second.

Map number (sheet 2)	Station number	Period of record (water years)	Station name	Date of major reservoir regulation (water year)	DA	Q_a	Q_{10}	Q_{20}	Q_{50}	Q_{70}	Q_{90}	Q_{95}
1	06444000	1932-42, 1948-81	White R at Crawford, NE		313	20.1	28.3	23.7	19.6	16.4	11.4	9.3
2	06445000	1952-81	White R below Cottonwood Cr near Whitney, NE		516	17.4	32.9	14.7	8.8	3.8	1.3	1.3
3	06445500	1932-42	White R near Chadron, NE		740	25.8	43.8	18.3	7.5	3.6	1.4	0.58
4	06445500	1959-79	Big Bordeaux Cr Chadron, NE		5.42	0.57	0.79	0.61	0.4	0.28	0.13	0.07
5	06453500	1950-81	Pasco Cr at Keeline, NE		505	43.6	74.7	22.8	3.8	0.84	0.01	0
6	06453800	1958-81	Pasco Cr at Verdel, NE		812	67.8	135	42.4	10	2.9	0.01	0
7	06454000	1958-81	Niobrara R at WY-NE state line		450	2.99	9	4.2	3.3	2.7	2	1.8
8	06454100	1950-81	Niobrara R at Agate, NE		880	14	23.3	18.2	13.7	10	6.1	4.8
9	06454500	1947-81	Niobrara R above Box Butte Res, NE		1,400	36	63.9	41.4	28.8	18	8.2	5.7
10	06455000	1947-81	Niobrara R below Box Butte Res, NE	1945	1,480	23.8	115	3.6	1.1	.82	.64	.57
11	06455500	1916-47	Niobrara R near Dunlap, NE		1,680	76.3	80.5	80.5	78.4	77.5	74	73

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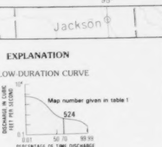
NEBRASKA

EXPLANATION

FLOW-DURATION CURVE


Map number given in table 1
524
DISCHARGE, IN CUBIC FEET PER SECOND
PERCENTAGE OF TIME DISCHARGE WAS EQUALED OR EXCEEDED (PROBABILITY SCALE)

MINIMUM DAILY FLOW, IN CUBIC FEET PER SECOND

- Greater than 1000
- 100-1000
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BOUNDARY BETWEEN MISSOURI AND ARKANSAS RIVER BASINS

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Table 1.—*Discharge and basin characteristics of selected streams DA, drainage area in square miles Q_a, mean annual discharge, Q_{10}, Q_{20}, Q_{50}, Q_{90}, Q_{95}, Q_{98}, discharge that exceeded for indicated percent of time. All discharges are in cubic feet per second.*

Map number (sheet 2)	Station number	Period of record (water years)	Station name	Date of major reservoir regulation (water year)	DA	Q_a	Q_{10}	Q_{20}	Q_{50}	Q_{90}	Q_{95}	Q_{98}
1	06444000	1932-43, 1945-81	White R at Crawford, NE		313	25.1	38.3	23.7	15.8	10.4	11.4	9.3
2	06445000	1952-81	White R below Cottonwood Cr near Whitney, NE		670	17.4	32.9	14.7	6.8	3.8	1.9	1.3
3	06445500	1932-43	White R near Chadron, NE		750	25.9	43.9	19.3	7.5	3.8	1.4	0.59
4	06446500	1909-79	Big Bordeaux Cr Chadron, NE		0.42	0.57	0.79	0.61	0.4	0.25	0.11	0.07
5	06452500	1950-81	Pasco Cr at Hoskins, NE		505	43.8	74.7	22.8	3.8	0.84	0.01	0
6	06453000	1950-81	Pasco Cr at Verdel, NE		812	67.8	125	42.8	10	2.7	2	1.6
7	06454000	1950-81	Niobrara R at Wf NE		450	7.89	6	6.2	5.3	3.7	3	2.6
8	06454100	1950-81	Niobrara R at Agate, NE		840	14	22.3	10.4	4.2	0.8	0.1	0
9	06454500	1941-81	Niobrara R above Box Butte Res, NE		1,400	30	53.8	23.4	10.8	5.1	3.5	2.7
10	06455500	1941-81	Niobrara R below Box Butte Res, NE	1945	1,490	25.8	110	19.4	4.6	1.5	1.1	0.97
11	06457000	1910-81	Niobrara R near Hemingford, NE		1,600	36.5	140	26.5	6.4	2.2	1.6	1.4

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Map showing location of continuous-record streamflow-gaging stations and low-flow frequency data for selected streams

FLOW CHARACTERISTICS FOR SELECTED STREAMS IN THE GREAT PLAINS SUBREGION, OF THE CENTRAL MIDWEST REGIONAL AQUIFER SYSTEM AND SELECTED ADJACENT AREAS—KANSAS AND NEBRASKA, AND PARTS OF COLORADO, IOWA, MISSOURI, NEW MEXICO, OKLAHOMA, SOUTH DAKOTA, TEXAS, AND WYOMING

By

E. R. Hedman and G. B. Engel

1989

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The subregion has three extensive water yielding geohydrologic units: (1) The High Plains aquifer consisting of Tertiary rocks and Quaternary deposits, (2) the Great Plains aquifer system, heretofore termed the "Dakota" aquifer, consisting of Lower Cretaceous rocks, and, (3) the Interior Basins aquifer system consisting of lower Paleozoic rocks, mostly dolomite.

METHODS OF ANALYSIS

Analysis of the streamflow characteristics in this report generally followed established techniques in hydrology as reported by Riggs (1972). The analysis involved defining low-flow characteristics for continuous record streamflow-gaging stations. The gaging stations used in this study are shown on sheet 1.

LOW FLOW FREQUENCY DATA

For each continuous record station, a log Pearson Type III distribution (U.S. Water Resources Council, 1967) was fitted to the logarithms of the annual minimum mean discharges for 7 consecutive days to compute the low-flow frequency distribution. The 7-day Q_2 and 7-day Q_{10} values (the average minimum flow for 7 consecutive days that have a recurrence interval of 2 or 10 years) are shown on sheet 1.

FLOW DURATION DATA

Flow duration data define the flow characteristics of streams throughout the range of flow at a gaging station. Flow duration data are determined from values of daily mean discharge and represent the percentage of time during the period of record that the daily mean discharge equals or exceeds specified discharges. Characteristics of flow duration curves differ from stream to stream and from point to point on the same stream. The slope of a curve indicates the variability of discharge of the stream and the natural storage within the basin. A curve with a steep slope denotes extremely variable streamflow, largely from surface runoff, or negligible basin storage. A curve with a flat slope indicates a well-sustained flow from surface or underground storage or from regulation.

Insets on sheet 2 for each gaging station are plots of flow-duration curves showing discharges exceeded from 0.01 to 99.99 percent of the time. Discharge values exceeded 10, 25, 50, 70, 90, and 95 percent of the time are listed in table 1 for each gaging station. The 70-percent duration point is shown on the graphs on sheet 2 because daily mean flow at the 70 percent duration point commonly is used to represent ground-water discharge to streams (base flow).

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Figure 1.—Area of Great Plains subregion, selected adjacent areas included in analysis, and boundary of Central Midwest regional aquifer system

SCALE 1:1 000 000

25 0 25 50 75 100 MILES

25 0 25 50 75 100 KILOMETERS

best copy available

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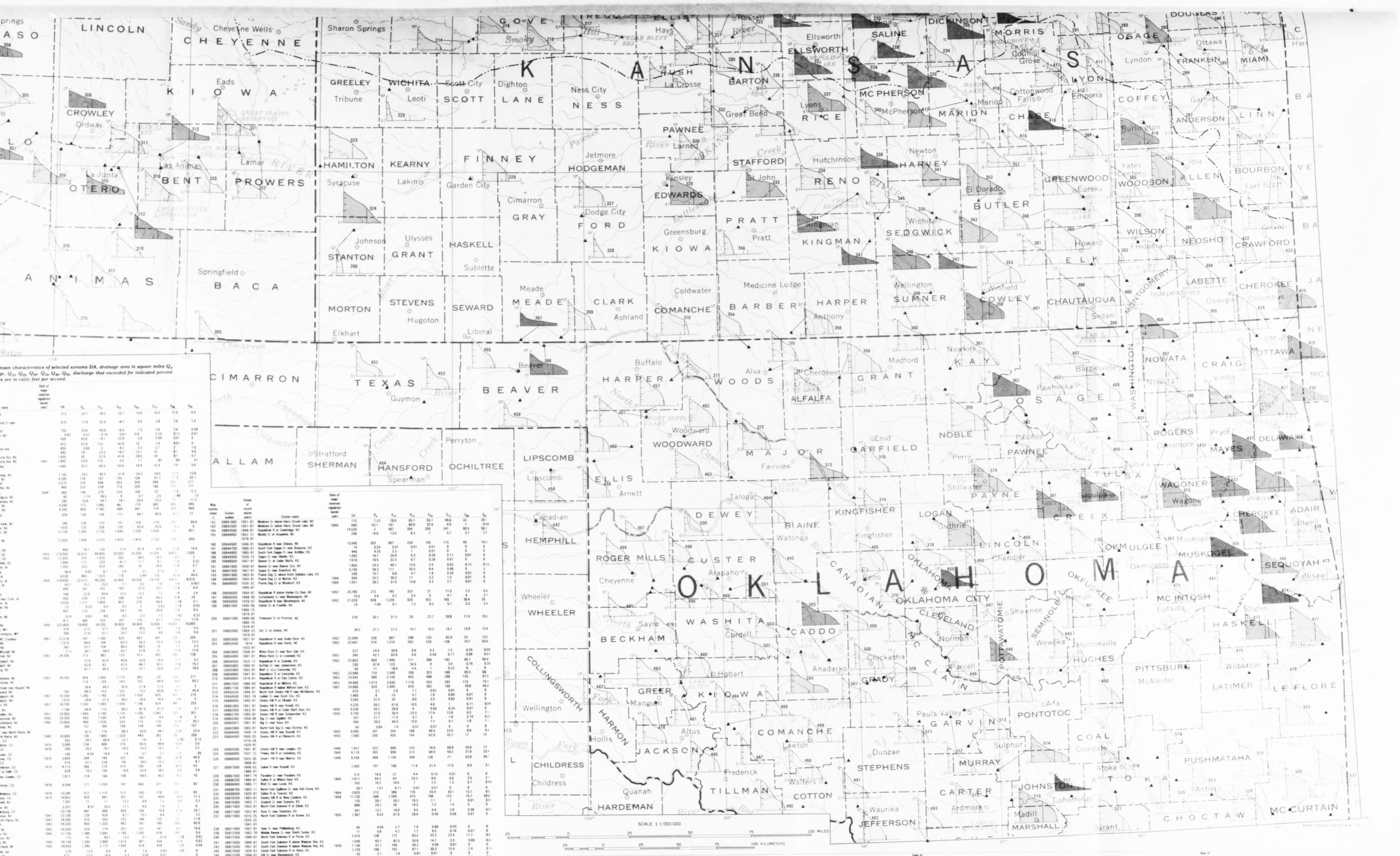
5	06453500	1950-81	Ponca Cr at Ardrie, NE	505	43.6	74.7	22.8	3.8	0.84	0.01	0
6	06453600	1958-81	Ponca Cr at Verdel, NE	812	67.6	125	42.4	10	2.8	0.2	0
7	06454000	1956-81	Niobrara R at WY-NE state line	450	3.98	6	4.2	3.3	2.7	2	1.8
8	06454100	1958-81	Niobrara R at Agate, NE	840	14	23.3	16.2	13.7	10	6.1	4.9
9	06454500	1947-81	Niobrara R above Box Butte Res, NE	1,400	30	52.9	41.4	28.6	18	8.1	5.7
10	06455100	1941-81	Niobrara R below Box Butte Res, NE	1,400	25.6	115	3.5	1.1	1.1	0.8	0.7
11	06455900	1935-42, 1952-81	Niobrara R near Dunlap, NE	1,560	35.3	89.3	50.5	16.4	12.3	7.9	5.8
12	06455500	1951-54	Niobrara R near Hay Springs, NE	1,790	28.2	40.3	31.8	24.3	19.5	12.2	10.8
13	06457500	1946-81	Niobrara R near Gordon, NE	4,280	118	162	135	108	81.7	61.2	55.1
14	06459500	1949-57	Niobrara R near Cody, NE	5,570	318	408	353	304	269	231	211
15	06459520	1963-82	Snake R above Merritt Res, NE	440	203	234	216	200	180	116	111
16	06459500	1964-81	Snake R near Burge, NE	1964	660	148	270	235	180	37	11.5	12.2
17	06460900	1959-74	Minnechaduza Cr near Kilgore, NE		93	219	58.3	8	4.7	2.5	1.48	1.3
18	06461500	1949-81	Minnechaduza Cr at Valentine, NE		390	335	54.7	34.5	29.5	23.2	19	11.5
19	06461501	1945-81	Niobrara R near Sparks, NE		8,030	772	1,040	887	770	662	493	440
20	06462000	1953-81	Niobrara R near Norden, NE		8,390	856	1,160	994	841	718	554	469
21	06462500	1945-75, 1977-81	Plum Cr at Meadville, NE		600	108	139	112	99.7	90.6	81.5	77
22	06463500	1949-81	Long Pine Cr near Riverview, NE		390	138	170	147	129	119	107	99.8
23	06464800	1958-81	Keya Paha R near Wewela, SD		1,530	125	258	175	93.6	43.6	19.2	9
24	06465000	1928-36, 1946-81	Niobrara R near Spencer, NE		12,100	1,393	2,150	1,630	1,250	1,030	731	621
25	06464500	1939-40, 1950-81	Niobrara R near Verdel, NE		12,600	1,509	2,370	1,810	1,410	1,130	794	658
26	06466500	1953-81	Bazile Cr near Niobrara, NE		440	78.1	124	71.5	47.4	34.5	21.5	16.4
27	06467500	1921-81	Missouri R at Yankton, SD	1955	279,500	28,410	44,400	33,500	25,000	16,000	8,400	7,000
28	06478500	1929-81	James R near Scotland, SD	1953	21,550	375	1,020	263	58.5	24.3	9.1	3
29	06478500	1946-81	Vermillion R near Wakonda, SD		1,680	491	703	517	377	87	1.8	0.32
30	06483500	1949-81	Rock R near Rock Valley, IA		1,582	323	529	240	78	38.9	11.8	5.7
31	06484000	1949-58	Dry Cr at Hawarden, IA		663	4.65	7.8	2.4	1.1	0.12	0	0
32	06485500	1929-81	Big Sioux R at Akron, IA		4,030	660	1,920	778	269	135	62.3	44.4
33	06486000	1929-81	Missouri R at Sioux City, IA	1955	314,600	32,070	48,200	35,900	28,500	19,100	11,400	8,070
34	06486000	1946-69	Perry Cr at Sioux City, IA		66.1	15.1	20.2	17	13.2	7.6	3.6	2.4
35	06500500	1936-81	Floyd R at James, IA		686	167	352	143	52.3	25.7	10.4	6.8
36	06501800	1946-81	Omaha Cr at Homer, NE		168	32.8	64.8	23.2	13.3	7.7	3.4	2.4
37	06502400	1940-81	Monona-Harrison Ditch near Turin, IA		900	209	1,370	398	129	68.5	31.4	28
38	06507500	1958-81	Little Sioux R near Turin, IA		1,570	1,111	1,800	801	275	89.6	19.8	8.1
39	06508000	1950-81	Tekamah Cr at Tekamah, NE		23	6.74	8.9	4.2	2	0.93	0.15	0.03
40	06508500	1941-81	Logan R at Pisgah, IA		407	123	205	93.1	50	30.6	13.9	8.5
41	06509000	1947-58	Lincoln Cr Dean No 1 near North Platte, NE		25.4	8.82	8.6	4.5	2.3	1.2	0.42	0.22
42	06509500	1919-81	Boyer R at Logan, IA		811	360	626	297	125	61.7	29.5	17.9
43	06510000	1929-81	Missouri R at Omaha, NE	1955	322,800	29,830	39,200	36,800	34,800	25,500	16,600	15,600
44	06511000	1930-71	Rawhide Cr near Leigh, NE		378	21.5	37.1	20.6	18.5	14.7	10.2	5.5
45	06512500	1937-71	Cherry Cr Drain near Farnington, WY		356	21.6	51.7	29.7	13.2	9.5	6.8	5.6
46	06514500	1932-81	North Platte R at WY-NE Stateline	1957	22,210	367	1,260	505	167	141	125	104
47	06517500	1932-81	Horse Cr near Lyman, NE		1,570	68.6	188	83.3	39.3	25.3	15.8	12
48	06518000	1932-81	Sheep Cr near Marsh, NE		362	55.1	104	86.5	68.5	50	31	23
49	06519000	1949-79	Dry Spottedtail Cr at Mitchell, NE		77.2	34.1	64.9	43.1	27.8	21	15.2	12.6
50	06519500	1931-81	North Platte R at Mitchell, NE	1957	24,300	713	983	720	511	393	181	128
51	06480000	1949-78	Tub Springs near Scottsbluff, NE			37.6	62.4	48.8	35.6	29.4	13.1	5.2
52	06481000	1932-79	Mirror Cr near Scottsbluff, NE			52.9	83	62.4	49.7	43.2	26.8	15.2
53	06481500	1932-45, 1949-81	Gering Cr near Gering, NE			41.5	84.3	52.9	32.1	26.8	20.7	18.4
54	06482000	1926-81	Niobrara R near Lewesteron, NE		787	39.2	51.8	33.7	23.8	12.7	10.9	9.4
55	06482500	1944-81	Dunlap Cr at Dunlap, NE		2,250	238	324	251	191	152	99.1	78.1
56	06485500	1928-81	Middle Loup R at St. Paul, NE		8,090	1,190	1,720	1,330	988	765	439	298
57	06486000	1928-81	Middle Loup R at Dunning, NE		2,260	458	856	553	456	383	258	188
58	06486500	1953-81	North Loup R at Scotia, NE		2,510	505	726	608	504	407	278	218
59	06487500	1941-81	North Loup R at Burwell, NE		1,062	300	502	336	294	271	238	227
60	06488500	1953-81	North Loup R at Ord, NE		3,750	864	1,190	1,000	860	749	512	411
61	06489500	1939-81	North Loup R near Scotia, NE		3,960	668	1,110	823	643	501	455	339
62	06490000	1950-81	Cedar R near Burwell, NE		94	5.63	9.4	3.1	1.3	0.41	0.18	
63	06490500	1941-81	Middle Loup R near Ord, NE		4,290	967	1,360	1,050	859	715	462	338
64	06491500	1945-53	Cedar R near Loseburg, NE			782	153	209	167	140	125	107
65	06492500	1941-81	Middle Loup R near Elyria, NE		1,220	239	336	246	200	171	131	108
66	06493500	1936-81	Loup R Power Canal near Genoa, NE			1,573	2,550	2,160	1,610	1,150	528	294
67	06494000	1941-81	Loup R near Genoa, NE		14,400	2,611	3,750	3,119	104	45.4	8.2	3.6
68	06453500	1945-53	Beaver Cr at Loretta, NE			311	75.6	127	74.2	54.5	44.2	39.6
69	06494500	1960-81	Beaver Cr at Genoa, NE		647	121	191	114	83.2	67.4	48.8	35.6
70	06495500	1935-78	Loup R at Columbus, NE		15,290	940	2,280	1,200	332	189	108	75.2
71	06495520	1965-78	Shell Cr near Columbus, NE		122	13.2	5.5	2.2	1.1	0.42	0.05	0
72	06495530	1968-75, 1978-81	Shell Cr near Columbus, NE		270	40.2	50.4	21.5	13	9	5.1	4
73	06496000	1950-81	Platte R at North Bend, NE		17,100	3,955	7,510	4,900	3,280	2,330	1,240	892
74	06497500	1940-81	Platte R at Venice, NE		19,570	4,150	8,040	5,240	3,510	2,490	1,330	953
75	06498000	1942-52, 1961-81	South Fork Elkhorn R near Ewing, NE		320	53	106	56.1	40.3	33.7	27.1	24
76	06498500	1937-58	Elkhorn R at Neligh, NE		2,200	276	501	254	164	125	80	60.4
77	06499000	1961-81	Elkhorn R at Norfolk, NE		2,790	479	929	469	286	223	154	126
78	06499100	1961-81	North Fork Elkhorn R near Pierce, NE		700	77	111	81.8	40.9	32.3	22.1	18.2
79	06499300	1973-81	Hemiborn R near Meadow, NE		1,100	169	310	180	86.5	70.5	49.2	39
80	06499450	1966-81	Logan Cr at Pender, NE		731	121	141	86.5	60.3	47.8	39.2	30
81	06499500	1961-81	Logan Cr near Emerson, NE		1,100	241	261	205	178	144	105	70.4
82	06500000	1951-81	Maple Cr near Nickerson, NE		450	53.0	75.8	23.8	35.6	13.7	4.2	2.6
83	06500500	1928-81	Elkhorn R near Waterloo, NE		6,950	1,108	2,080	1,430	1,020	705	409	305
84	06501000	1928-60	Platte R near Ashland, NE		67,100	5,080	9,890	6,100	3,720	2,550	1,480	1,100
85	06501500	1951-81	Salt Cr at Roca, NE		1,150	76	115	89	67.4	55.2	33.2	23.6
86	06502500	1951-81	Salt Cr at Lincoln, NE	1958	684	201	312	136	81.8	65.3	47.7	39.8
87	06503510	1970-81	Little Salt Cr near Lincoln, NE		43.8	10.9	14.4	7	3.8	2.8	1.8	1.4
88	06503520	1968-81	Little Stevens R nr Ashland, NE		47.8	12.3	19.7	5.9	2.2	0.74	0.41	0.26
89	06503530	1970-81	Rock Cr near Cerescu, NE		118	27	32.8	19.2	9.7	7.2	4.8	3.6
90	06503540	1970-81	Salt Cr at Greenwood, NE		1,051	275	437	271	206.6	185	141.7	111
91	06504000	1950-81	Wahoo Cr at Ithaca, NE			271	75.2	85	47.8	30.7	24	19.8
92	06504500	1950-81	Silver Cr at Prague, NE			1,130	1,740	1,360	1,060	825	497	341
93	06505000	1948-81	Salt Cr near Ashland, NE			1,811	478	751	594	483	337	267
94	06505500	1934-81	Platte R near Louisville, NE		85,000	5,660	10,600	6,560	4,150	2,900	1,610	1,200
95	06506000	1947-58	Weyerman Cr near Bartlett, IA			30.4	11.2	14.8	7.5	4.3	2.8	1.1
96	06506500	1951-81	Weeping Water Cr near Nehawka, NE			241	61.1	103	74.1	58.4	43.6	33.6
97	06508000	1931-81	Missouri R at Nebraska City, NE	1955	410,000	35,670	42,000	39,700	37,300	29,000	19,800	18,500
98	06508500	1931-81	Nemaha R at Auburn, NE		1,300	1,025	2,080	1,270	443	244	160	125
99	06510500	1952-59	Little Nemaha R near Syracuse, NE			212	64.3	80.1	37.9	17.3	8.4	2.2
100	06511500	1952-81	Little Nemaha R at Auburn, NE			1,060	1,710	1,400	1,170	874	552	373
101	06513000	1922-81	Tarkio R at Fairfax, MO			508	785	609	487	387	57.6	27.7
102	06513500	1940-81	Nodaway R at Clarinda, IA	1955	414,800	34,850	61,500	47,000	37,000	25,000	16,100	13,500
103	06514000	1950-81	Turkey Cr near Seneca, KS			276	123	190	63.8	19.3	8.1	1.5
104	06514500	1950-81	Silver Cr at Nemaha R at Humboldt, NE			1,340	575	884	670	487	341	265
105	06515000	1940-81	Big Nemaha R at Falls City, NE			1,340	575	989	384	144	81.8	41
106	06515500	1953-72	Muddy Cr at Verdon, NE			148	66.2	103	48	20.6	10.1	6
107	06516000	1915-81	Mill Cr at Oregon, MO			4.8	2.18	4.2	1.8	0.82	0.35	0.01
108	06516500	1929-31	Missouri R at St. Joseph, MO		426,000	34,400	67,800	48,000	35,100	25,000	14,100	11,200
109	06520500	1915-81	Platte R near Agency, MO			1,790	3,010	2,340	1,930	1,610	1,060	883
110	06521000	1951-78	Jantzen Branch at Grower, MO				2.91	2.18	1.4	0.78	0.19	0.01
111	06521500	1933-81	Arkansas R at Dodge City, KS			1,640	233.3	372.2	211	98.1	52.6	42.2
112	06523000	1931-81	North Fork Republican R at CO-NB State Line			1,280	47.6	77.2	60.9	52.5	27.3	8.9
113	06523500	1941-81	Buffalo Cr at Haigler, NE			1,080	7.58	12.6	8.6	6.2	4.5	3.1
114	06524000	1941-81	Rock Cr at Parks, NE			20	14	17.3	15.6	14.4	13.2	11.3
115	06524500	1948-81	Republican R at Benkelman, NE			2,450	87.6	154	115	81.4	47.7	32.3
116	06525000	1950-81	South Fork Republican R near Hale, CO	1950		1,825	20.8	61.7	16.1	6.7	0.1	0.4
117	06527500	1928-81	South Fork Republican R near Stratton, NE	1940		2,740	51.5	94.9	55.9	23.2	5.1	0.1
118	06528500	1951-81	Republican R at Stratton, NE			8,450	130	261	169	97.3	47.7	0
119	06529500	1948-81	Republican R at Trenton, NE	1933		9,320	84.5	211	110	53.8	5.8	0.6
120	06531710	1942-81	Frenchman Cr near Imperial, NE			880	64	88.8	76.7	63.9	53.2	35.8
121	06531900	1964-81	Frenchman Cr near Enders, NE	1946		956	82.6	163	85	28.6	7.4	1.1
122	06534000	1951-81	Frenchman Cr at Palisade, NE			1,110	84.8	205	99	47.1	36.4	28.1
123	06535000	1951-81	Stinking Water Cr near Palisade, NE			1,080	40.8	57.1	47.8	39.2	30.4	23.8
124	06536000	1951-81	Frenchman Cr at Culbertson, NE			2,770	104	189	138	91.9	56.3	29.8
125	06536500	1914-81	Blackwood Cr near Culbertson, NE			320	8.51	11	4.4	2.1	1.2	0.66
126	06537500	1941-81	Driftwood Cr near McCook, NE			360	16.4	32.2	6.8	3.7	1.5	0.14
127	06537000	1951-81	Republican R at McCook, NE			12,310	167	351	128	89.1	68.4	53.6
128	06537500	1941-81	Red Willow Cr above Hugh Butler Lake, NE			600	28.4	42.2	33.2	24.7	19	14.5
129	06537500	1941-81	Red Willow Cr near McCook, NE	1962		740	24.4	58.7	27.8	6.4	4.5	3.9
130	06538000	1941-81	Red Willow Cr near Red Willow, NE			880	28.4	48.7	34	19.1	12.2	9.8
131	06540000	1952-58, 1978-81	Fox Cr at Curtis, NE			72.8	7.36	9.8	8	6.5	5.3	3.9

Map number (sheet 3)	Station number	Period of record (water years)	Station name	DA	Q_d	Q_{10}	Q_{20}	Q_{30}	Q_{70}	Q_{90}	Q_{95}
182	06841000	1951-81	Medicine Cr above Harry Strunk Lake, NE	770	7.23	78.8	85.1	55.1	46.8	32	28.1
183	06842500	1951-81	Medicine Cr below Harry Strunk Lake, NE	1949	880	82.1	181	89.9	62.8	4.6	0.1	0.68
184	06843500	1946-81	Republican R at Cambridge, NE		14,520	2	567	354	205	141	80.5	58.2
185	06844000	1952-72, 1978-81	Muddy Cr at Arapahoe, NE		246	14.0	13.8	13.6	8.3	3.7	2.7	2.6
186	06844500	1946-81	Republican R near Orleans, NE		15,040	303	807	334	190	115	45	15.5
187	06844700	1968-81	South Fork Sappa Cr near Brewster, KS		74	0.24	0.01	0.01	0.01	0	0	0
188	06844800	1960-81	South Fork Sappa Cr near Arcadia, KS		446	4.28	2.3	1	0.01	0	0	0
189	06845000	1930-72	Sappa Cr near Oberlin, KS		1,083	18.7	20.8	8.3	0.39	0.11	0.01	0
190	06846500	1947-81	Beaver Cr at Cedar Bluffs, KS		1,618	18.5	22.2	9.9	0.28	0.01	0	0
191	06847000	1938-81	Beaver Cr near Beaver City, NE		1,950	24.3	49.1	15.5	2.4	0.63	0.12	0.02
192	06847500	1947-81	Sappa Cr near Stamford, NE		3,140	58.3	117	35.5	8.4	0.48	0	0
193	06847900	1963-81	Prairie Dog Cr above Keith Sebelius Lake, KS	1964	690	16.1	8.6	4.7	1.8	0.25	0.01	0
194	06848000	1945-81	Prairie Dog Cr at Norton, KS	1964	884	25.2	38.3	11	2.2	1.3	0.01	0
195	06848500	1928-32, 1945-81	Prairie Dog Cr at Woodruff, KS	1964	1,897	38.2	37.5	14.6	5.3	2.6	0.01	0
196	06849500	1956-81	Republican R below Harlan Co Dam, NE	1952	20,700	272	745	332	21	11.2	7.2	5.6
197	06850200	1949-56	Cottonwood Cr near Bloomington, NE		15.6	5.8	6.2	5.5	5	4.7	4	3.1
198	06850500	1929-57	Republican R near Bloomington, NE	1952	21,020	638	1,230	820	352	185	38.4	25
199	06851000	1949-56, 1959-75, 1978-81	Garber Cr at Franklin, NE		74	7.66	9.1	7.3	6.2	5.1	3.3	2.4
200	06851500	1949-56, 1959-75, 1978-81	Thompson Cr at Riverton, NE		279	30.1	31.3	26	22.7	20.8	17.4	16.2
201	06852000	1949-56, 1959-75, 1978-81	Elm Cr at Amboy, NE		38.2	21.1	21.2	18.1	16.2	15.1	13.8	12.6
202	06853000	1951-81	Republican R near Guide Rock, NE	1952	22,040	338	807	298	125	82.9	33	13.2
203	06853500	1914, 1933-81	Republican R near Hardy, NE	1952	22,401	574	1,210	582	258	138	74.7	54.6
204	06853800	1958-81	White Rock Cr near Bun Oak, KS		227	24.4	30.8	8.8	3.3	1.2	0.25	0.09
205	06854000	1947-81	White Rock Cr at Lovewell, KS	1957	345	42.1	82.8	8.8	0.49	0.17	0.08	0.01
206	06854500	1928-72	Republican R at Scandia, KS	1952	22,803	893	1,440	711	368	182	95.1	64.6
207	06855800	1960-81	Buffalo Cr near Jamestown, KS		330	67.8	123	34.9	6	3.4	0.78	0.25
208	06855900	1962-81	Wolf Cr near Concordia, KS		56	11	18.4	4.4	1	0.22	0	0
209	06856000	1947-81	Republican R below Milford Dam, KS	1967	24,890	820	2,000	970	362	188	78.8	49.8
210	06856500	1948-81	North Fork Solomon R near McAllaster, KS		670	3.7	2.8	1.1	0.01	0	0	0
211	06857000	1952-78	Ladder Cr near Scott City, KS		1,680	8	10	4.1	1.9	0.85	0.01	0
212	06857100	1964-81	Smoky Hill R at Elkader, KS		3,060	315	30	16.6	2.5	0.92	0.01	0
213	06861000	1951-81	Smoky Hill R near Arnold, KS		5,220	59.2	61.9	19.5	4.6	1	0.11	0.04
214	06863500	1953-81	Smoky Hill R at Cedar Bluff Dam, KS	1950	5,530	30.2	28.6	4	0.68	0.24	0.01	0
215	06862700	1965-81	Smoky Hill R near Schoenchen, KS	1950	5,750	31.6	39.4	23.5	17.4	13.8	9.3	7.1
216	06863200	1965-81	Big Creek near Ogallah, KS		297	21.7	17.4	8.2	2	1.6	0.18	0.01
217	06863500	1941-81	Big Cr near Hays, KS		504	38.9	40.5	18.8	7.2	4.1	1.8	1.1
218	06863900	1965-81	Smoky Hill R near Victoria, KS		6,965	207	394	108	40.5	23.5	9.8	4.4
219	06864000	1940-74	Smoky Hill R near Russell, KS	1950	6,965	207	394	108	40.5	23.5	9.8	4.4
220	06864500	1896-23, 1949-81	Smoky Hill R at Ellsworth, KS	1950	7,580	250	456	144	62.6	35.7	17	12
221	06865500	1926-81	Smoky Hill R near Langley, KS	1948	7,857	322	886	225	76.8	48.8	25.9	17
222	06866000	1931-81	Smoky Hill R at Lindsborg, KS	1948	8,110	355	880	273	84.5	56.2	31.8	23.4
223	06865500	1913-25, 1946-81	Smoky Hill R near Assaria, KS	1948	8,338	408	1,150	382	143	75	42.8	34.1
224	06866500	1940-81	Saline R near Russell, KS	1950	1,502	101	166	71.8	31.4	17.5	6.4	3.1
225	06867500	1947-74	Paradise Cr near Paradise, KS		212	19.4	27	4.4	0.15	0.01	0	0
226	06868200	1964-81	Saline R at Wilson Dam, KS	1964	1,917	44.2	43	20.3	9.8	6.8	2.5	2
227	06868400	1965-74	Wolf Cr near Lucas, KS		183	16.2	18.8	8	2.1	1.3	0.7	0.49
228	06868700	1963-71	North Fork Spillman Cr near Ash Grove, KS		26.1	1.01	0.11	0.01	0.01	0	0	0
229	06869500	1928-81	Saline R at Tescott, KS	1964	2,820	212	504	135	55.4	30.1	13.7	8.5
230	06870200	1963-81	Smoky Hill R at New Cambria, KS	1948	11,730	586	1,580	475	104	123	75.7	58.8
231	06869800	1965-71	Slipdam Cr near Gypsum, KS		120	26.1	39.2	16.3	7.1	2	0.01	0
232	06870900	1953-81	North Fork Solomon R at Glade, KS		849	29.2	39	18.3	7.2	1.4	0	
233	06871300	1952-81	Deer Cr near Cawker, KS		341	13.2	15.8	8.5	4.4	2.8	0.38	0.01
234	06871800	1918-25, 1934-81	North Fork Solomon R at Kirwin, KS	1955	1,387	8.32	67.8	29.4	0.58	0.08	0.01	0
235	06871900	1941-81	Deer Cr near Phillipsburg, KS		85	4.04	2.7	1.6	0.69	0.03	0	0
236	06872300	1962-78	Middle Beaver Cr near South Center, KS		71	5.8	4.2	1.2	0.5	0.18	0.01	0
237	06872500	1941-81	North Fork Solomon R near Portis, KS		2,315	136	172	83.2	33.1	21.4	11.3	8.5
238	06873000	1946-81	South Fork Solomon R above Webster Res, KS		1,040	83.1	81.5	35.8	14.7	2.3	0.09	0
239	06873200	1957-81	South Fork Solomon R below Webster Res, KS	1958	1,150	42.1	145	35.2	0.09	0.01	0	0
240	06873500	1951-81	Solomon R near Niles, KS		1,740	2,580	3,500	2,580	1,520	440	322	276
241	06874700	1964-81	Kill Cr near Bloomington, KS		52	2.1	1.9	0.01	0.01	0	0	0
242	06874000	1941-81	North Fork Solomon R at Solomon, KS		2,870	204	313	222	123	51	24.5	17.3
243	06875900	1965-81	Solomon R near Glen Elder, KS	1960	5,340	133	290	87.9	35.2	20.4	11.1	7.2
244	06876000	1939-81	Solomon R at Beloit, KS		6,490	1,071	772	1,540	244	87.9	12.6	5.1
245	06876700	1965-81	Salt Cr near Ada, KS		384	55.9	85	21.9	8.2	3.8	1.2	0.44
246	06876900	1965-81	Solomon R at Niles, KS		1,080	1,130	1,580	367	152	88.4	32.4	20.5
247	06877800	1935-81	Smoky Hill R at Enterprise, KS	1949	19,280	1,588	3,880	1,380	513	301	151	112
248	06878000	1951-81	Chapman Cr at Chapman, KS		115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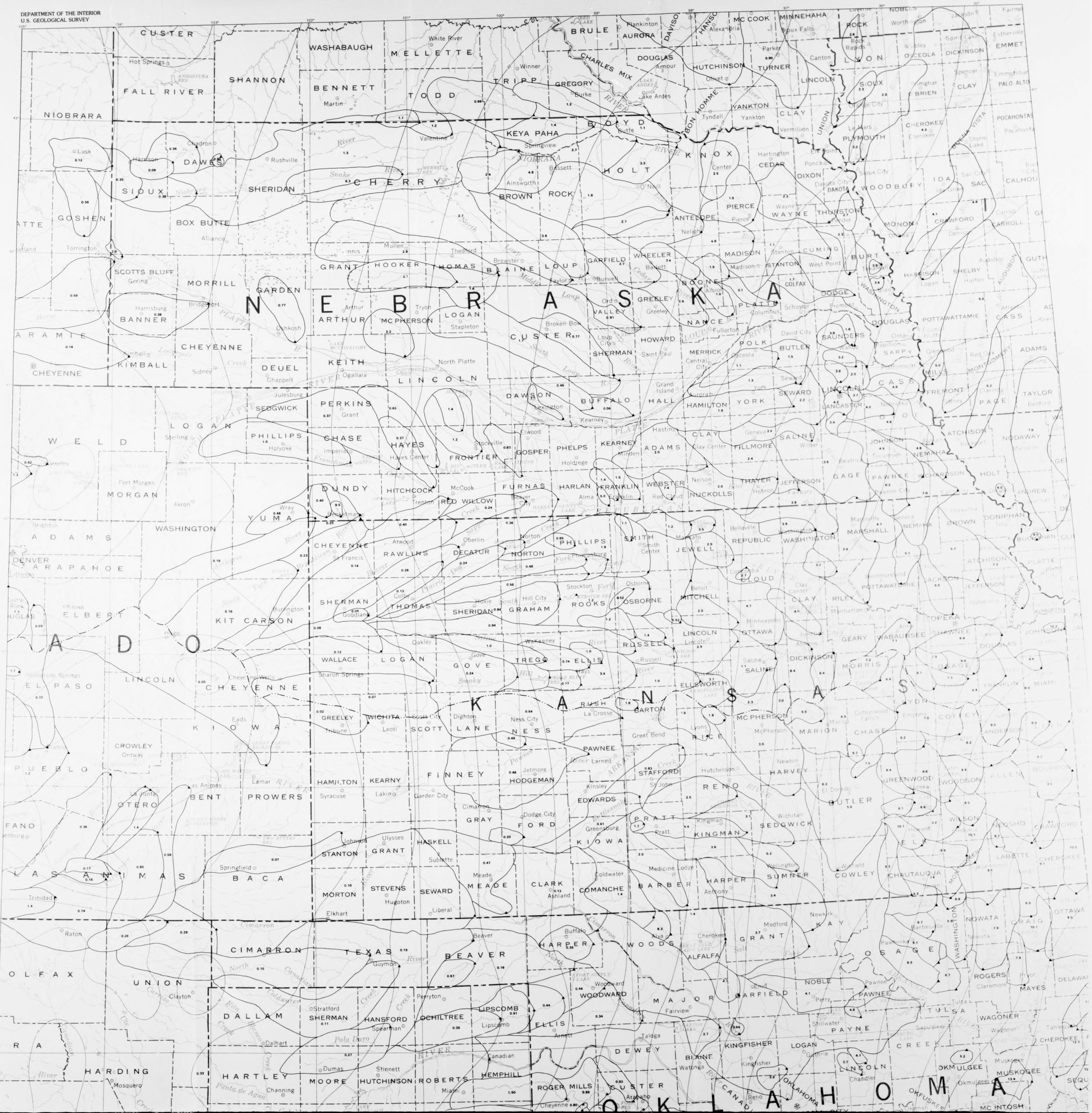
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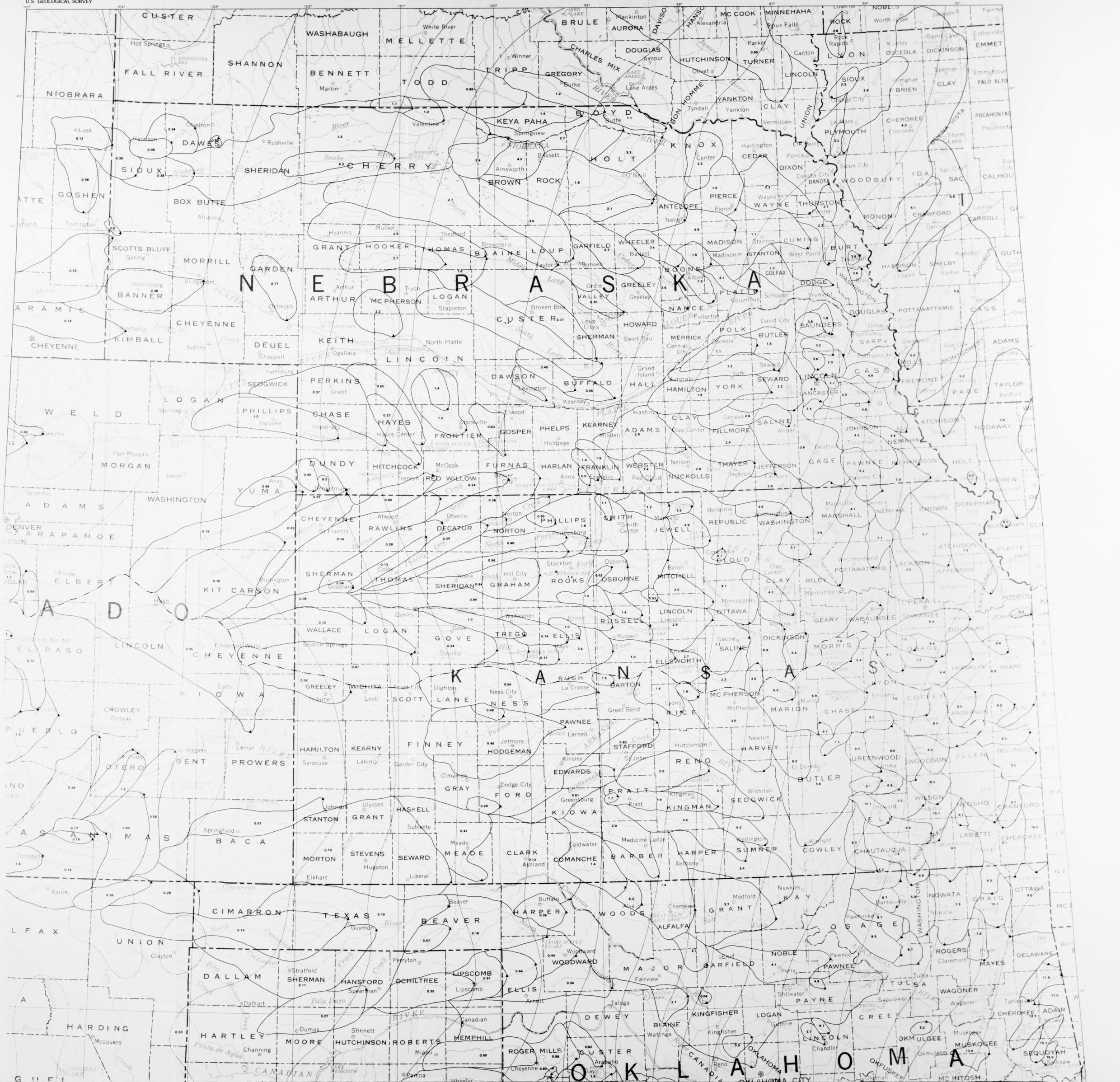

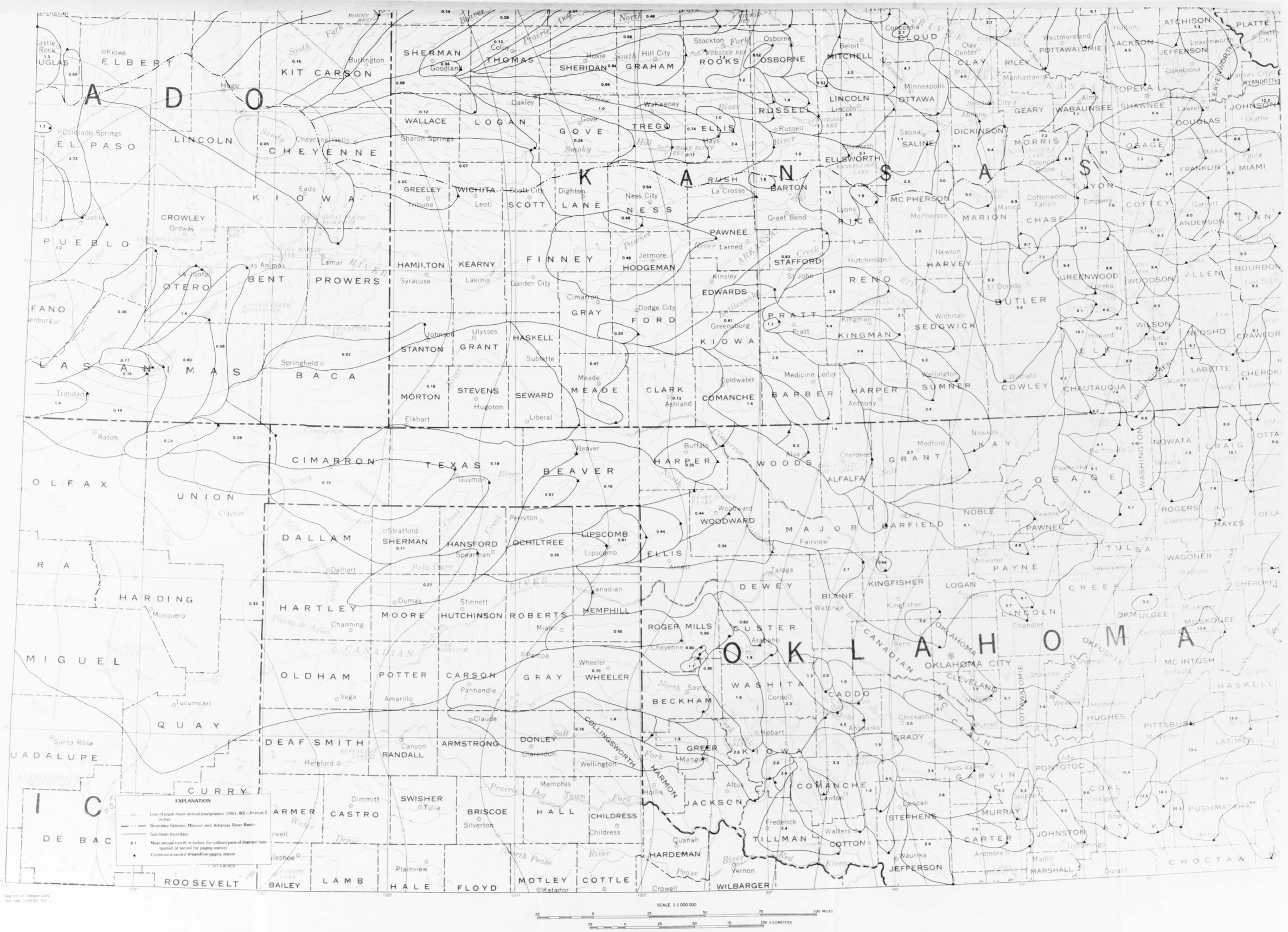

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Map showing mean annual precipitation and runoff

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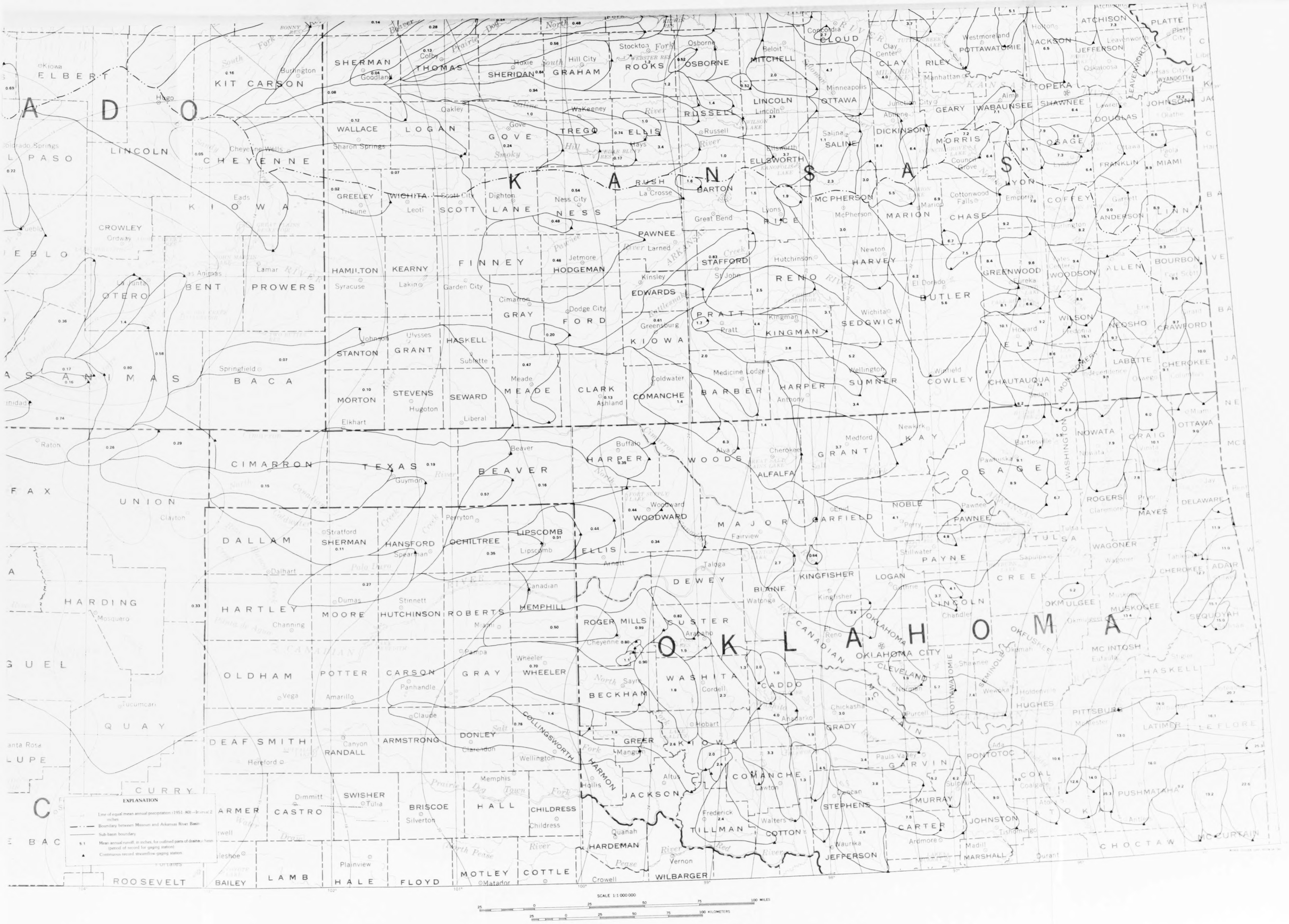

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GEOLOGIC MAP OF THE ROAN PLATEAU AREA, NORTHWESTERN COLORADO

By William J. Hail, Jr., Robert B. O'Sullivan, and Marjorie C. Smith

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